



05-0803

2800

Attorney Docket No: 46522 / 1101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#5
11-13-03
B.J.H

In re Application of: Pace Micro Technology PLC

Serial No.: 10/085,489 ✓

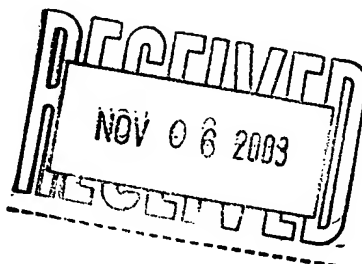
Group Art Unit: 2673

Filed: 02/26/02

Examiner: Not Assigned

For: REPRESENTATION OF EPG PROGRAMMING INFORMATION

New York, NY 10022

MAIL STOP PETITION
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450RECEIVED
MAY - 6 2003
TECHNOLOGY CENTER 2800**PETITION TO ADD FOREIGN PRIORITY CLAIM
AFTER THE FILING OF THE APPLICATION**

Sir:

It is respectfully requested that a claim for Foreign Priority be added to the files for the above-referenced patent application. The delay for notifying the Patent Office of this priority claim was unintentional.

The parent application was filed in Great Britain on February 27, 2001 and was accorded application no. 0104781.9. A certified copy of the application as filed in the Great Britain Patent Office is enclosed. This prior application was filed in the name of Pace Micro Technology PLC who is the Assignee of Record for this present application.

07/15/2004 AKELLEY 00000017 500988 10085489

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The delay in notifying the Patent Office of the Priority claim was due to an inadvertent omission of information on review of the documents that was filed with this present application.

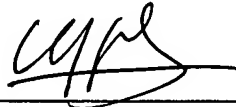
Applicant would respectfully request to amend it's application to claim the priority filing date of the Great Britain Patent Application and hereby added the following Amendment to it's application:

"This application claims the benefit of Great Britain Patent Application No. 0104781.9. which was filed on February 27, 2001."

Favorable action is respectfully requested.

The Commissioner is hereby authorized to charge Deposit Account 50-0988 in the name of Kaye Scholer LLP for the filing of this petition.

Respectfully submitted,



Gregory P. Silberman
Reg. No. 39,836

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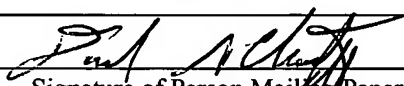
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~~THE~~ PATENT OFFICE

27 FEB 2001

NEWPORT

The Patent Office

Cardiff Road
Newport

Gwent NP9 1RH

1. Your reference

GW-G30940

2. Patent application number
(The Patent Office will fill in this part)

27FEB01 E609282-5 D00346.

P01/7700 0.00-0104761.0

0104781.0

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Pace Micro Technology Plc

**Victoria Road
Saltaire
Shipley
BD18 3LF**

27 FEB 2001

7588569001

England

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

Representation of EPG Programming Information

5. Name of your agent (if you have one)

Bailey Walsh & Co.

“Address for service” in the United Kingdom
to which all correspondence should be sent
(including the postcode)

**5, York Place
Leeds
LS1 2SD**

Patents ADP number (if you know it)

224001

6. If you are declaring priority from one or more earlier patent applications, give the and the date of filing of the or of each of these earlier applications and (*if you know it*) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / years)

7. If this application is divided or otherwise derived from an earlier UK application, the earlier application

Number of earlier application

Date of filing
(day / month / years)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer "Yes" if:

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body
See note (d)

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Patents Form 1/77

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Continuation sheets of this form

Description 7

Claim(s)

Abstract

Drawing(s) 5+3

10. If you are also filing any of the following, state how many of each item.

Priority Documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (Please specify)

11. I/We request the grant of a patent on the basis of this application

Signature

Date

G Wood

26.02.01

12. Name and daytime telephone number of person to contact in the United Kingdom

G Wood
0113 2433824

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

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Representation of EPG Programming Information

The invention relates to the representation of information visually and particularly, although not necessarily exclusively, the provision of information in the form of programming information such as that provided as part of an Electronic Programme Guide (EPG). The invention relates to the format of the EPG display and particularly the provision of additional user choices which can be made from the display. Although the invention is described with reference to the EPG this does not and should not be interpreted as, limiting the scope of the invention.

An EPG is generated as a graphic interface on a display screen and is generated by a broadcast data receiver from data broadcast by and received from one or a number of service providers. The EPG can show a range of programme or function related information at least some portions of which can be selected by the user to obtain further information or to perform certain functions. The user typically navigates through the EPG by making a series of selections via appropriate control means, typically a remote control device. The use of the device and interaction with the broadcast data receiver (BDR) allows movement about the screen and through different display layers.

In this description the term "a level of choice" is used to refer to a menu option which is accessible by the user through navigation in the graphic user interface, "a level of select" is used to define the press of an action key on a control means such as a remote control device that executes the choice. A "user input device" is any control means provided to the user for control of the BDR, most commonly a remote control unit or the front panel keys, and "navigation keys" are the directional

keys on the user input device; such as Up, Down, Left, Right, Page up, Page down.

A conventional EPG presents the programming info with two level of user choice in a two dimensional space. (Time versus Channel, Channel versus Time, Theme versus Channel, etc). Normally the choices are mapped to x and y co-ordinates in a grid function on the screen and to the navigation buttons on the user input device. A change in x-co-ordinate, performed by operation of (left/right arrows) changes the user's choices in the y direction. Movement in the y direction (up/down arrows, page up/down) chooses a selectable program. This gives the user two levels of choice with one level of selection. The two dimensional grid with rows and columns, is one particular embodiment of this.

While this system allows beneficial and effective use of the two dimensional space, a limitation of this approach is the two dimensional graphic interface and the limited number of navigational keys on the user input device which can be used.

When the user wants another view, he/she has to press another "menu-mapped" button on the remote control. There are two known methods to perform this function which are either to have remote control keys mapped directly to different pages of the EPG, such that depression of a particular key causes the generation of a particular EPG display and/or to have one button bring up a menu/list of all available menus of the EPG. In the latter of these opinions there is a need for an additional level of user selection before the desired list of choices is shown.

The aim of the present invention is to overcome the limitations of the two dimensional interface of the conventional EPG display to facilitate improved use of the EPG.

In a first aspect of the invention there is provided a graphics interface for display on screen and characterised in that the graphics interface has at least three navigational axes.

In one embodiment the graphics interface is used to generate an electronic programme guide (EPG) on a display screen.

By adding a third navigational axis and providing the user with the means to navigate along this axis using existing navigational keys, so a new range of user options can be selected from the single graphics display, thus eliminating the need for a separate interface to be generated and the need for an additional user selection.

In one embodiment each of the three axes are selectively navigable by the user via a user input device. Typically navigation along a selected axis allows a definable range of options to be selected, said option range indicated as part of the EPG display. Preferably the navigation along each of the axes can be achieved by use of conventional key selections on the user input device.

In one embodiment there is provided a z axis which is allocated to show, and allow selection of a range of, viewing options for the x and/or y axes.

By performing the invention so the amount of user choice is increased to three without increasing the select levels required to be performed by the user to select a particular programme.

Specific embodiments of the invention are now described with reference to the accompanying drawings wherein:-

Figure 1 illustrates in schematic fashion a conventional, prior art, display format;

Figures 2 and 3 illustrate stages of the current invention involving the use of navigation axes;

Figure 4 illustrates the expansion of a conventional EPG decision tree in accordance with the invention; and

Figure 5 shows an on-screen view of an EPG in accordance with one embodiment of the invention.

Referring firstly to Figure 1 there is illustrated the conventional approach to the format of an EPG display. In practice the screen view 2 is a part of a larger EPG graphics display page of information 4. When the user wishes to view another portion of the page, the directional keys move the view area 2 around on the page 4 as required by the user, in the x and y axis, 6, 8.

Now looking at the invention of this application, a third axis 10, is provided and this is used to extend the EPG information which can be selected into three dimensions. This is achieved by the decision to stack multiple pages 4, 12, 14 as shown in figure 2. Movement on the page 4 remains mapped to movement along the x- and y-axes, but there is now the additional option of movement between pages 4, 12, 14 and which movement is mapped to movement along the z-axis.

The visual representation of the z-axis can be added as an independent view of a row or column of choices (menu bar) 16 as indicated in Figure 3 as part of the display screen view and as shown in more detail in Figure 5. The movement in the z direction is indicated by movement of a cursor along the member 16.

To avoid the need for additional select levels, a separate set of keys can be mapped or re-mapped to control and provide movement options along the z-axis.

Movement in the z-direction changes the view of choices in the x-y plane, and movement in the x-direction changes the choices in the y-direction. As in a conventional EPG implementation, the lowest level of choice, choice of a specific program, is in the y direction.

The organisation of choices and data in a traditional EPG can be represented as a 2 level decision tree 20 as shown in Figure 4. A third layer of decision requires an additional level 22 in the tree as shown in figure 4. In this example, in an EPG, the chosen object will always be a channel. The objects of choice can be presented to the user in any graphic form (line, row, image, etc).

By indexing the EPG programming information rather than sorting, there is never a need to reorganise the information. If desired, the programming information can be stored in a flat unsorted array and the data is parsed and indexed as it comes in. The indexes are in turn mapped to the choices along the x-, y- and z-axes 6, 8, 10 respectively. Indexing rather than sorting decreases the necessity of resorting or having multiple copies of the same data.

The representation of programming information in accordance with the invention eliminates the need for mapping remote control buttons to the user configurable keys. These keys can then be ignored, or removed, thus simplifying the remote control, or are used to allow access to other broadband services such as yellow pages, shopping, communication, etc.

For other graphics interfaces such as those used, for example, for broadband services the 3 layers of choice can be used to give the user faster access to the desired object within that service, and it should be appreciated that reference in this application to the display and utilisation of the invention can be repeated to advantage in any appropriate graphic user interface.

A specific example of the invention is described where an Electronic Programme Guide is visually represented as an almanac with a tab for each page, as indicated in Fig. 3. The tabs are placed vertically on the right hand side of the display and indicate motion and choices in the z-direction. The movement between pages is mapped to the page up and page down buttons on the user interface device. The arrow keys (left, right, up, down) are mapped to motion in the x-y plane as in a conventional EPG. In order to maintain the ability to scroll faster on a page, the action of continuous hold is mapped to an arrow button to fast scrolling. This replaces the need for using page up and page down for manoeuvring in the x-y plane.

All programming data is presented as lines in a column where motion in the x-direction changes the content of the column and motion in the y direction moves the cursor up and down between available programs.

In the mapping of the EPG data to the three dimensional space the axes are mapped in the following manner:

Z = Page	= Sorting method/programme type
Y = Column	= Sort index
X = Line	= Programme

The settings can also be adapted so that, for example, for another form of graphics interface such as a display for service access and payment facilities with three layers of choice, the x, y and z co-ordinates can be mapped this way:

Z = Page	= Settings group (Payment, output, parental control, etc)
Y = Column	= Setting (Method of payment)
X = Line	= Options for setting (credit card, direct withdrawal, bill me)

Traditional EPG

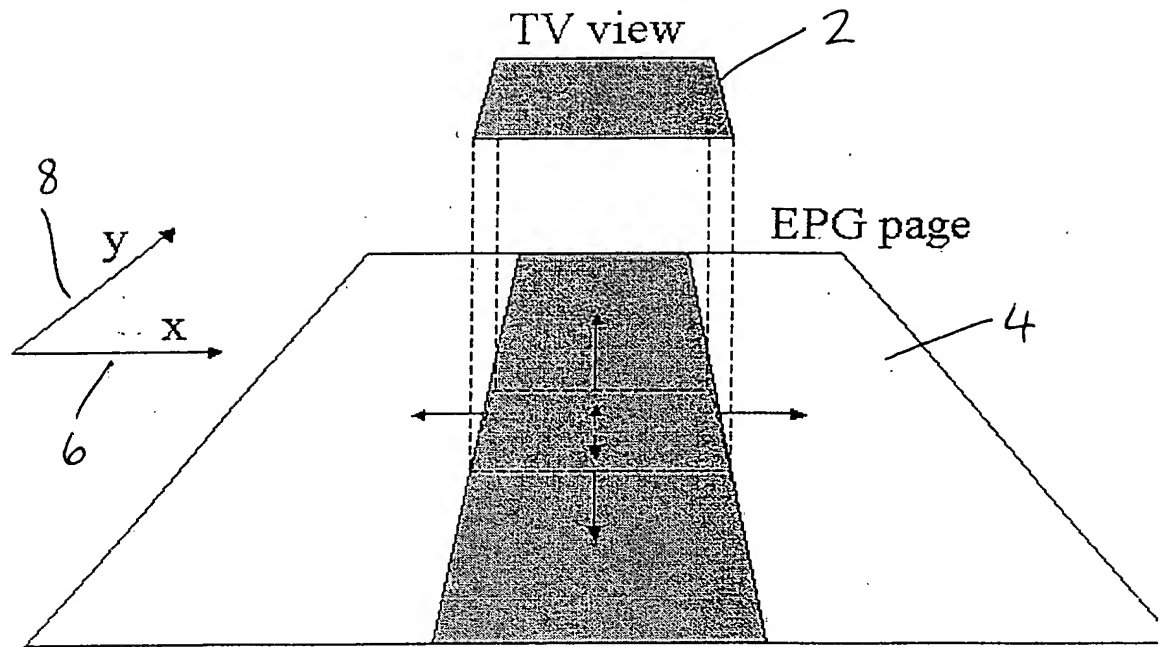


Figure 1

Organization of programming information in three dimensions

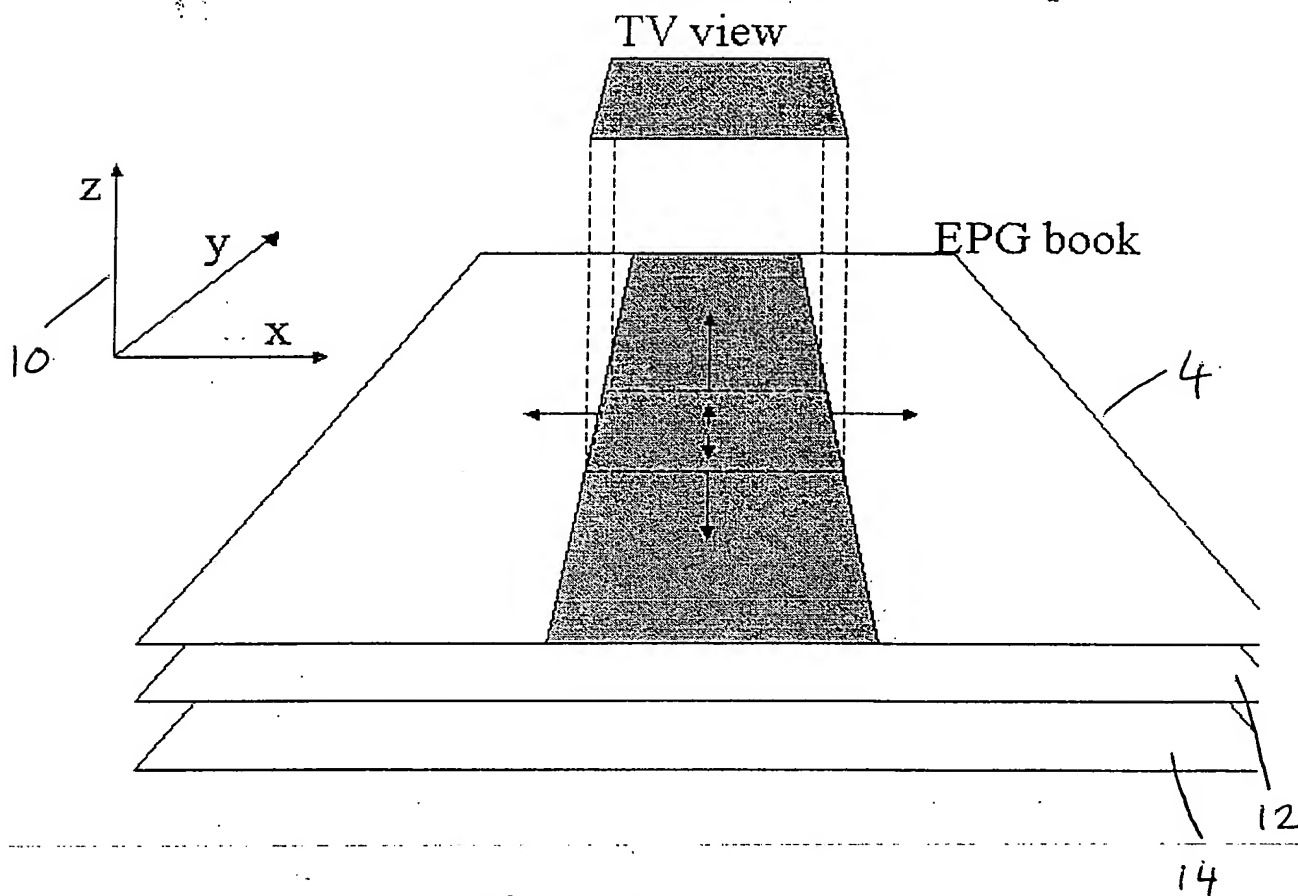


Figure 2

Mapping z-axis to user input device

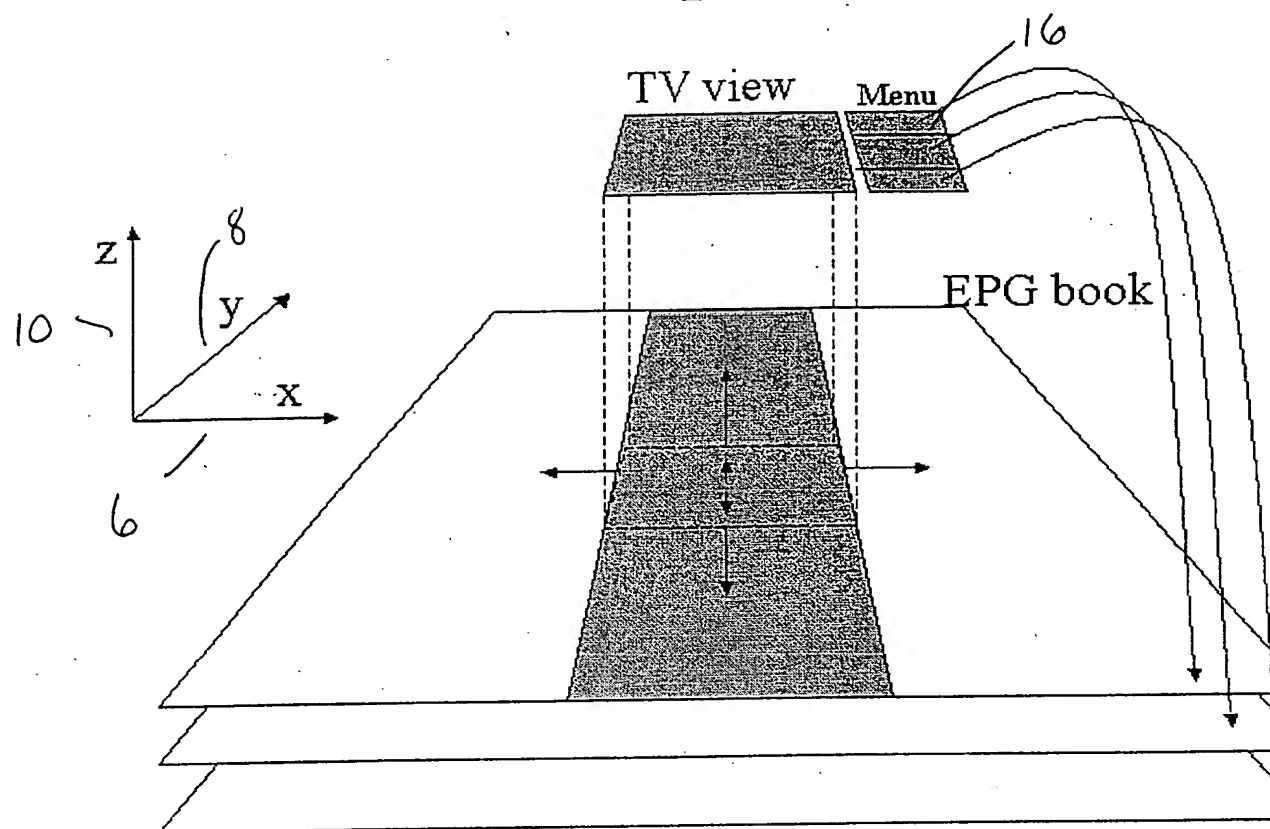


Figure 3

Mapping the data for three levels of user choice

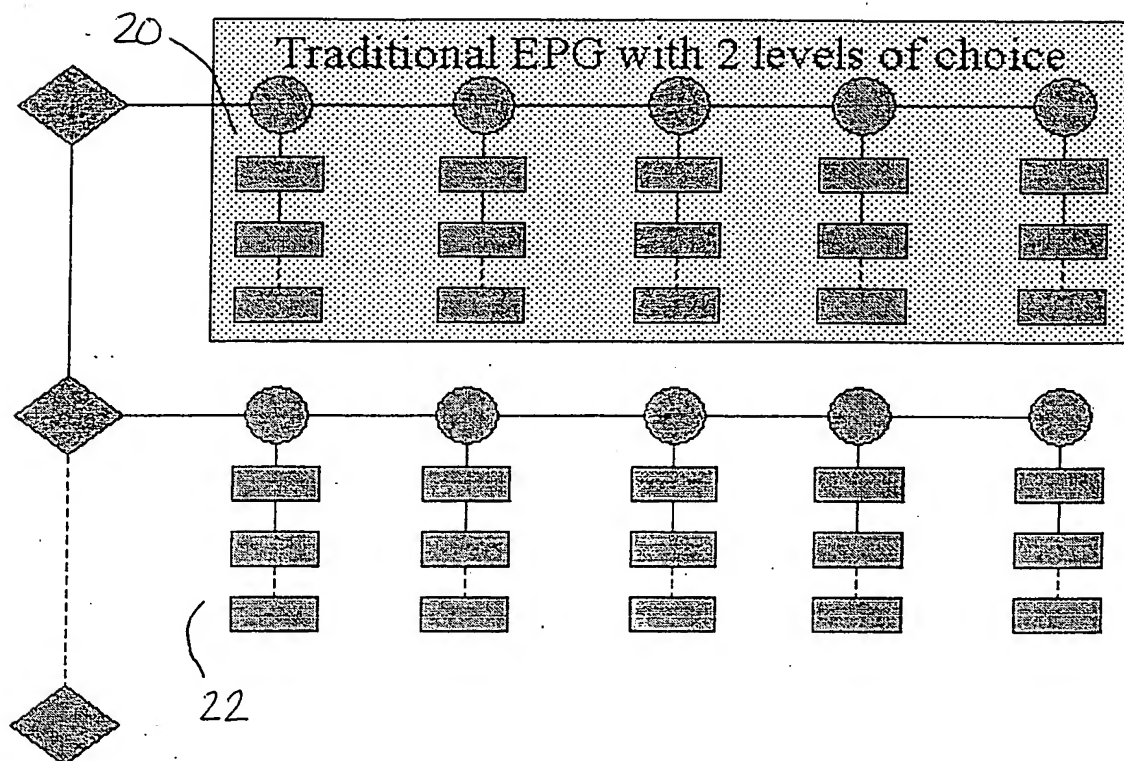


Figure 4

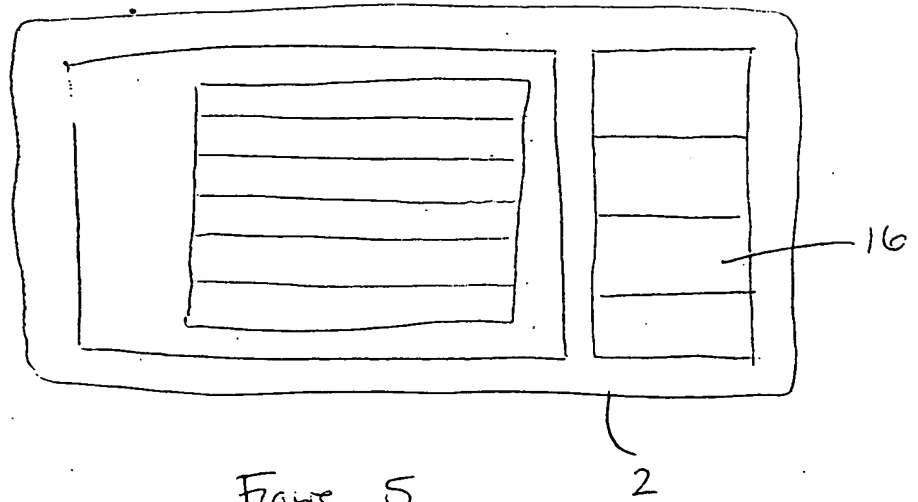


Figure 5